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Abstract

The youth market is a powerful consumer group that is among the leaders in technology adoption particularly in the banking sector. New technologies such as mobile commerce present a significant market and change the industry dynamics of the banking sector. This paper examines the role of the youth market in adopting m-commerce. Social cognitive theory is utilised through a conceptual framework to understand the youth market's intentions towards Wireless Application Protocol Banking. The conceptual framework is tested through a quantitative methodology and suggestions for future research are discussed.

Key words: mobile commerce, innovation

Mobile commerce which is also referred to as m-commerce is a new industry that is significantly changing the way consumers view banking services. An early adopted of m-commerce is the youth market. This paper discusses mobile commerce with specific attention focused on the youth market and online banking. The theory underpinning this study which is social cognitive theory is next analysed with reference to the youth market and m-commerce. The methodology of the quantitative study is discussed and the main findings of the study are stated. Finally, implications for future research are stated.

JUSTIFICATION FOR STUDY

Mobile Commerce

Mobile commerce (m-commerce) is an emerging industry that combines electronic commerce (e-commerce) with mobile phones. Wireless Application Protocol (WAP) mobile phones are the dominant tools that have allowed for the emergence of such a market. Exponential growth has occurred and continues to occur in the m-commerce service industry (Redman, 1999; National Office for the Information Economy, 2001b; Rockhold, 2000). It would be sound to presume that this has been highly dependent on the development of the Internet. The development of the Internet is revolutionising channel management (Kohl, 2000; Wymbs, 2000) and has led to increased e-commerce activity. The application of e-commerce functions and the incredible reach of e-commerce and now in m-commerce has inspired banks to utilise this retail function (Brown, 1999; Diniz, 1995; Takac, 1997). The distinguishing feature for commercial adopters of m-commerce strategies is that m-commerce offers a generic low cost marketing strategy with an ample dormant market.

In gauging the size of the potential market, the National Office for the Information Economy (2001a) estimates that the growth in mobile phone penetration and usage will approach a worldwide usage of one billion users in 2003 which equates to approximately one in three people being users of this new technology. Furthermore, as worldwide usage of WAP technology increases, the usage of e-commerce and m-commerce technologies will also increase. The Organisation for Economic Cooperation and Development (OECD) (1998) anticipates that the retail industry will become increasingly dependent on electronic commerce functions. This study will attempt to investigate how e-commerce and m-commerce can be applied to the Australian banking industry, and in particular the online banking sector. Many researchers have discussed the importance of the banking sector in terms of its presence, usage and conversion from a consumer perspective and producer perspective (e.g Avkiran, 1997; Brown, 1999; Takac, 1997).

Importance of the Youth Market

The importance of consumers in the online banking sector (and an indication of the potential for m-commerce) can be shown by the large increase in number of commercial transactions being conducted online (Australian Bureau of Statistics, 2001). This growth in magnitude of online transactions being conducted online has shifted the balance of power in the banking industry. Consumers now have more purchasing power as there has been a reduction in asymmetric information and there has been an increase in the ability of consumers to ‘shop around’ for the best product and/or price. This increase in consumer

power is particularly prevalent in the youth market. Empirical research has shown that the youth market exhibit early adopter trends and tenacity towards technological innovations (e.g. National Office for the Information Economy, 2001c; Organisation for Economic Cooperation and Development, 2001). The youth market is more likely to internalise technology such as mobile phone, e-commerce and Internet functions into their lifestyles (Forrester Research, 2001). Therefore, the youth market appears to be in a better position to cope with the rapid technological development that is prevalent in the m-commerce industry.

In the marketing literature, the eighteen to twenty-nine years age group which is the youth market identified by the OECD (2001), tends to be under researched in relation to behavioural adoption of technological innovations. A majority of the studies that have been conducted on behavioural intention tend to be central to cigarettes and alcohol consumption (e.g. Garlington & Derrico, 1977). Studies on youths appear to show that they are innovators (Yankee Research Group, 1999) and are early adopters of electronic distribution mediums with relation to banking (National Office for the Information Economy, 2001c; Organisation for Economic Cooperation and Development, 2001). These two latter studies although empirically sound were conducted almost a generation ago. The rapid technological development present in the current business cycle and product cycle has changed dramatically from this era.

The acceptance of technological change provides some indication of why the youth market feels empowered with new technology such as their mobile phones (MacNeil, 1999). The ability to adopt new technology within the youth market has encouraged this study. So too has the role of m-commerce as demonstrated by the development of e-commerce and mobile phone usage.

Online Banking

Globalisation and e-commerce are two factors changing the banking industry. They have forced banks to compete against local and global financial institutions in addition to creating an awareness of the value of automation of products and services (Takac, 1997). Banks competing in deregulated and innovative service arenas have re-focused marketing strategies aligning with current technology trends and capabilities (Birch, 1996; Diniz, 1998; Hall, Whitemire & Knight, 1999). The Commonwealth Bank of Australia (CBA) constitutes an example of a successful transition comprising technology trends and capabilities in e-commerce. The CBA reached a milestone with its 500,000th on-line customer, and reported 180% growth of online banking between June 1999 and June 2000 (Brown, 1999). Brown (1999) also states that the CBA had a total value of Internet banking transactions of A$600 million for the fiscal year 1999-2000.

The application of computer technology since the early 1980s has dramatically changed the way banks have continued to operate. The OECD (1998) believes that internationally, banking e-commerce is a potential gateway to low-cost international banking, with almost two-thirds of the world's top 100 banks expecting to use the Internet as a platform for global expansion. Electronic payment systems that include Internet banking are clearly an important component of the e-commerce supply chain (National Office for the Information Economy, 2001a). Seitz & Stickel (1998) specify four distinguishing classes of Internet use in banking institutions: information presentation, information presentation together with two way (asynchronous) communication (e.g. email to request further information), interaction with the user (e.g. execution of programs with individual customer data) and transaction banking (e.g. electronic payments).

With the forecast growth in the availability and usage of WAP technology, it is expected that Seitz & Stickel's (1998) functions will be increasingly utilised via mobile phones. This phenomenon has prompted the need for further study of WAP usage and in particular WAP banking. For the purposes of this dissertation WAP banking will be deemed to encompass all of Seitz & Stickel's (1998) Internet applications available for banks in a mobile context.

This study is guided by three dominant trends unveiled in the preceding analysis of the banking industry and electronic commerce. The first trend is the increasing use of electronic delivery of banks products and services. Second, is the rapid consumer acceptance of e-commerce and online business activities. Third, is the emergence of WAP technology along with the exponential growth of mobile phone products and market penetration. Given that the youth market represents an innovative market segment with high usage of mobile phone technology, the focus of this research will be on their attitudes toward and intention to use WAP technology for banking purposes, as modelled by social cognitive theory.

SOCIAL COGNITIVE THEORY

Bandura's (1986) social cognitive theory offers a comprehensive framework for the study of WAP banking intentions by Australian youths. Social cognitive theory appears to provide a more encompassing body of factors that lead to a behavioural intention. Its emphasis is on the self and its ideology focus is that people have the capacity to influence their own motivation and action through an interaction of (a) cognitive, emotional and other personal factors; (b) action; and (c) environmental events (Bandura, 1989).

The model used for this study (see Figure 1.0) is based on Sheeshka, Woolcott & MacKinnon's (1993) model of social cognitive theory. The variables used in the model are strongly supported by other advocates of social cognitive theory (e.g. Bussey & Bandura, 1999; Langlois & Hallam, 1999; Van Vianen, 1999). The model was developed to explain the intention of individuals towards nutritional eating behaviours in the applied psychology stream of research. In their model, Sheeshka, Woolcott & MacKinnon (1993) state that media, modeling, outcome values, outcome expectations and self-efficacy are all independent variables and that these variables flow in the direction of influencing intention. This study considers their individual impact on intention to use WAP banking.

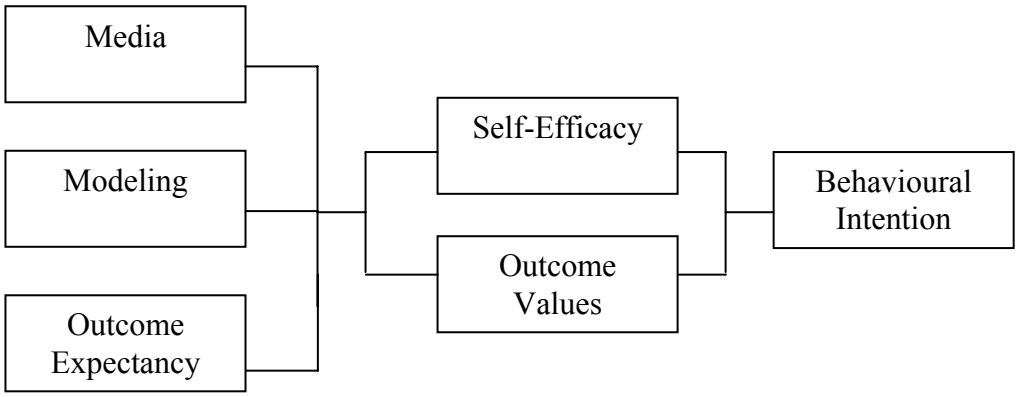
Insert Figure 1.0 about here

FINDINGS

Methodology

The methodology incorporated in this research was of a quantitative nature. Survey questionnaires were used to gather data from a sample. The survey utilised scales that have been shown to have a sound level of reliability and had been applied in previous research studies relating to behaviour. The survey was then conducted on youths, all respondents were between the ages of 18 and 29 years old, attending one of Brisbane's metropolitan

Figure 1.0 Social Cognitive Theory Australian Youth Model



Source: Adapted model from Sheeshka, Woolcott & MacKinnon (1993).

universities, giving a sample size of two hundred and three, to produce a sample that was both convenient and deemed representative of the population. The data was then analysed using a combination of dependence and independence statistical techniques. These included factor analysis and ANOVA analysis.

Delimitations and Scope of the Study

A key limitation to this research is that it is exploratory in nature. The study aims to establish if there is a relationship between intention to use WAP banking and the social cognitive theory behavioural influence variables. This means that the research should not be viewed as a final explanation of intention to use WAP banking as predicted by social cognitive theory.

Furthermore, in conducting this research the sample was limited in size, location and convenience. This would lead to the sample not capturing a more precise level of variance in Australian youths' responses. Generalisability would therefore be affected to some degree due to the limitations of the sample. Finally, it would appear that the variables do not encompass all influences on behavioural intention. Behavioural influences exist in many forms and this study only utilises those consistent with and described by social cognitive theory.

Reliability of Summated Variables Employed

A total of six summated scales were used in the study. Reliability was measured using Cronbach's alpha (Nunnally, 1978) and the Cronbach alpha values calculated for each summated variable. Outcome expectancy was the only variable that was below the recommended social science level of 0.6. The result of a large scale and a low reliability score prompted the use of factorial analysis to determine if more than one dimension was being measured. The factor analysis defined two statistically dominant factor groups. The ability to measure two distinct constructs was further confirmed when reliability scores, shown in Table 3.0, were calculated for each group. Although outcome expectancy scale question number 2 (O.EXPECT2) was removed from the first dominant group in accordance with Spector's (1992) item-total correlation. Subsequently a higher reliability score resulted.

As there is appears to be no logical or statistical reason for the exclusion of either group from the analysis, they were both incorporated into the ANOVA.For the purpose of this research an alpha level of 0.7 was required for a statistically stronger reliability.

Obtaining an alpha value and reliability score, suitable for this study (greater than 0.7), from the data was possible. This was done in accordance with Spector's (1992) recommendations governing summated scales whereby items with low item-total correlation are progressively deleted. Table 2.0 represents a finalised version of these changes.

Insert Table 2.0 and 3.0 about here

The results of the research, as shown in Table 3.0, support only a portion of the model indicated and the applicability of the independent variables at the 0.05 statistical probability level. The proposal of the study was that behavioural intention of Australian youths to use WAP banking would be influenced by media exposure, modeling of others, outcome expectancy, self-efficacy and outcome values. The findings showed that Australian youths were influenced by media exposure and outcome values and that the remaining variables were statistically insignificant.

In considering the variables that were found to be insignificant, modeling, outcome expectancy and self-efficacy, an attempt was made to offer possible resolutions for these findings. An emergent theme was that outcome values might inadvertently account for a more encompassing range of behaviours including outcome expectancy and self-efficacy. The rejection of modeling was proposed to be a result of the immaturity of WAP banking as a service.

Australian youths were found to not be influenced by other people, in the form of modeling or observability, when making a decision regarding usage of WAP banking. This result may imply that Australian youths are more introspective when making usage decisions about WAP services. However a more persuasive justification may be that WAP technology and its services are not presently utilised by partners, relatives, friends or social contacts. This would be due to the immaturity of WAP banking in the Australian financial services market.

In the instance of this study, Australian youths may not have developed outcome expectations regarding WAP banking. This may be so given that youths are still obtaining information about WAP banking. This was indicated in the support for the hypothesis of media influencing behavioural intention. The results of the data showed that media acted as an information source and influenced behavioural intentions (i.e. the intention to use WAP banking).

A possible resolution to this statistical effect may lie in the rapid diffusion of technology into the lifestyles of Australian youths. In this regard a plausible reason may be that assimilation of technology into youths' lifestyles is seen to be a common occurrence and not a large obstacle. This is demonstrated through Bolt, Killough & Koh's (2001) study of task complexity. Bolt et al. (2001) examined task complexity in computer training and found that computer self-efficacy has a greater positive effect on behaviour when task complexity is high than when task complexity is low. Australian youths have both a high level of experience with

Table 2.0 Adjusted Alpha Scores

Scale	Number of Items	Cronbach's Alpha
Behavioural Intention	6	0.90
Media	7	0.80
Modeling	5	0.90
Outcome Expectancy	4	0.80
Outcome Expectancy	3	0.75
Outcome Values	8	0.80
Self-Efficacy	8	0.84

N=203
Source: analysis of survey data

Table 3.0 ANOVA Analysis

Dependent Variable: BISUM

Source	Type 3 S	df	Mean square	F	Sig
Corrected Model	131.87	15	8.79	5.12	0
Intercept	62.02	1	62.02	36.13	0
SESUM	3.12	1	3.12	1.82	0.18
OVALSUM	25.02	1	25.02	14.57	0
MEDIAHL	37.40	1	37.40	21.79	0
MODHL	0.14	1	0.14	0.08	0.78
OESG1HL	5.09	1	5.09	2.97	0.09
OESG2HL	2.61	1	2.61	1.52	0.22
MEDIAHL*MODHL	16.43	1	16.43	9.57	0.01
MEDIAHL*OESG1HL	5.41	1	5.41	3.15	0.08
MODHL*OESG1HL	0.54	1	0.54	0.31	0.58
MEDIAHL*MODHL*OESG1HL	5.57	1	5.57	3.25	0.07
MEDIAHL*OESG2HL	2.33	1	2.33	1.35	0.25
MODHL*OESG2HL	2.43E-02	1	2.43E-02	0.01	9.05E-01
MEDIAHL*MODHL*OESG2HL	2.58	1	2.58	1.50	0.22
OESG1HL*OESG2H	1.55	1	1.55	0.91	0.34
MEDIAHL*OESG1HL*OESG2HL	0	0	0	0	0
MODHL*OESG1HL*OESG2HL	1.54	1	1.54	0.90	0.35
MEDIAHL*MODHL*OESG1HL*OESG2HL	0	0	0	0	0
Error	317.59	185	1.72		

Total	4343.17	201			
Corrected Total	449.46	200			

R-Squared = 0.293

Adjusted R-Squared = 0.236

Source: analysis of survey data

the Internet and mobile phones (Australian Bureau of Statistics, 2001; Yankee Research Group, 1999) both of which contribute to form m-commerce and WAP banking applications.

FUTURE RESEARCH

Future research directions in the e-commerce and m-commerce field focus on factors such as (a) if the retail industry is accessible by mobile phone and (b) the role of consumers in the online banking sector. Secondly, the timing of this study with relation to the introduction of WAP technology and WAP banking services would appear to direct the focus of future research. Aspects of the questionnaire asked for responses that may not have occurred. This means that in order to gain a more complete understanding of the application of social cognitive theory in predicting behavioural intention a study would be better positioned after the adoption of WAP banking or technology.

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